

CLAIM LISTING WITH AMENDMENTS INCORPORATED

1. A monoclonal antibody specific for a purified human colon carcinoma-associated protein antigen, which is murine monoclonal antibody 33.28 as produced by hybridoma PCA 33.28, deposited with the American Type Culture Collection and assigned accession number PTA-5413.
2. A purified antibody which competitively inhibits binding of the antibody of claim 1 to the human colon carcinoma - associated protein antigen.
3. An antibody according to claim 2 wherein said colon carcinoma-associated antigen is a protein having a molecular weight of about 61.1 kilodaltons as measured by gradient polyacrylamide gel electrophoresis.
4. A monoclonal antibody specific for a purified human colon carcinoma-associated protein antigen, which is mouse monoclonal antibody 31.1, as produced by hybridoma PCA 31.1, deposited with the American Type Culture Collection and assigned accession number PTA-2497.
5. A purified antibody which competitively inhibits binding of the antibody of claim 4 to the human colon carcinoma - associated protein antigen.
6. An antibody according to claim 5 wherein said colon carcinoma-associated antigen is a glycoprotein, the protein component having a molecular weight of about 72 kilodaltons as measured by gradient polyacrylamide gel electrophoresis.
7. An antibody according to claim 1, 2, 4 or 5 immobilized on a solid phase.
8. An antibody according to claim 1, 2, 4 or 5 which is detectably labeled.

9. An antibody according to claim 8 wherein said detectable label is a radiolabel.
10. An antibody according to claim 1, 2, 4 or 5 conjugated to a cytotoxic radionuclide.
11. An antibody according to claim 1, 2, 4 or 5 conjugated to a cytotoxic drug.
12. An antibody according to claim 1, 2, 4 or 5 conjugated to a cytotoxic protein.
13. A composition comprising an antibody according to claim 10 in combination with a pharmaceutically acceptable carrier.
14. A composition comprising an antibody according to claim 11 in combination with a pharmaceutically acceptable carrier.
15. A composition comprising an antibody according to claim 12 in combination with a pharmaceutically acceptable carrier.
22. An immunoassay for detecting a colon carcinoma-associated antigen which binds to mouse monoclonal antibody 33.28 as produced by hybridoma PCA 33.28, deposited with the American Type Culture Collection and assigned accession number PTA-5413, in a sample comprising:
 - (a) contacting said sample with an effective binding amount of the antibody according to claim 1 or claim 2; and
 - (b) detecting said antigen by detecting the binding of the antibody to the colon carcinoma - associated protein antigen.
23. An immunoassay for detecting a colon carcinoma-associated antigen which binds to mouse monoclonal antibody 31.1, as produced by hybridoma PCA 31.1, deposited with the American Type Culture Collection and assigned accession number PTA-2497, in a sample comprising:

- (a) contacting said sample with an effective binding amount of the antibody according to claim 4 or claim 5; and
- (b) detecting said antigen by detecting the binding of the antibody to the colon carcinoma - associated protein antigen.

24. A method for diagnosing colon cancer in humans comprising:

- (a) removing a histological specimen from a patient suspected of having a colon cancer;
- (b) contacting the specimen with monoclonal antibody 33.28, as produced by hybridoma PCA 33.28, deposited with the American Type Culture Collection and assigned accession number PTA-5413;
- (c) staining the specimen with an immunohistochemical stain; and
- (d) detecting the presence of the antigen-antibody complex by the stain.

25. A method for diagnosing colon cancer in humans comprising:

- (a) removing a histological specimen from a patient suspected of having colon carcinoma;
- (b) contacting the specimen with mouse monoclonal antibody 31.1, as produced by hybridoma PCA 31.1, deposited with the American Type Culture Collection and assigned accession number PTA-2497;
- (c) staining the specimen with an immunohistochemical stain; and
- (d) detecting the presence of the antigen-antibody complex.

26. A method according to claim 24 wherein the stain is an avidin-biotin immunoperoxidase stain.

27. A method according to claim 25 wherein the stain is an avidin-biotin immunoperoxidase stain.

28. A kit for the immunohistochemical detection of colon carcinoma comprising:

- (a) mouse monoclonal antibody 31.1, as produced by hybridoma PCA 31.1, deposited with the American Type Culture Collection and assigned accession number PTA-2497;
- (b) reagents for immunoperoxidase and secondary antibody;
- (c) immunoperoxidase; and
- (d) colorizing reagents.

29. A kit for the immunohistochemical detection of colon carcinoma comprising:

- (a) mouse monoclonal antibody 33.28, as produced by hybridoma PCA 33.28, deposited with the American Type Culture Collection and assigned accession number PTA-5413;
- (b) reagents for immunoperoxidase and secondary antibody;
- (c) immunoperoxidase; and
- (d) colorizing reagents.

30. A compartmentalized kit for the detection of a human colon carcinoma-associated antigen, said kit comprising a first container adapted to contain an antibody according to claim 2 or 5, and a second container adapted to contain a second antibody to said antigen said second antibody being labeled with a reporter molecule capable of giving a detectable signal.

31. A kit according to claim 30 wherein the reporter molecule is a radioisotope, an enzyme, a fluorescent molecule, a chemiluminescent molecule or a bioluminescent molecule.

32. A kit according to claim 30 wherein the reporter molecule is an enzyme.

33. A kit according to claim 32 wherein the kit further comprises a third container adapted to contain a substrate for the enzyme.

34. A compartmentalized kit for the detection of a human colon carcinoma-associated antigen, said kit comprising a first container adapted to contain monoclonal antibody

31.1, as produced by hybridoma PCA 31.1, deposited with the American Type Culture Collection and assigned accession number PTA-2497, to said antigen and a second container adapted to contain a second antibody to said antigen, said second antibody being labeled with a reporter molecule capable of giving a detectable signal.

35. A kit according to claim 34 wherein the reporter molecule is a radioisotope, an enzyme, a fluorescent molecule, a chemiluminescent molecule or a bioluminescent molecule.

36. A kit according to claim 34 wherein the reporter molecule is an enzyme.

37. A kit according to claim 36 wherein the kit further comprises a third container adapted to contain a substrate for the enzyme.

38. A compartmentalized kit for the detection of a human colon carcinoma-associated antigen, said kit comprising a first container adapted to contain monoclonal antibody 33.28, as produced by hybridoma PCA 33.28, deposited with the American Type Culture Collection and assigned accession number PTA-5413 to said antigen and a second container adapted to contain a second antibody to said antigen, said second antibody being labeled with a reporter molecule capable of giving a detectable signal.

39. A kit according to claim 38 wherein the reporter molecule is a radioisotope, an enzyme, a fluorescent molecule, a chemiluminescent molecule or a bioluminescent molecule.

40. A kit according to claim 38 wherein the reporter molecule is an enzyme.

41. A kit according to claim 40 wherein the kit further comprises a third container adapted to contain a substrate for the enzyme.

43. A chimeric antibody which is a chimeric mouse/human antibody Chi #1 as produced by the cell line deposited with the American Type Culture Collection and assigned accession number CRL-12316.

44. The chimeric antibody according to claim 43 wherein said colon carcinoma-associated antigen is a protein having a molecular weight of 72 kilodaltons as measured by gradient polyacrylamide gel electrophoresis.

45. A composition comprising the chimeric antibody according to claim 43 in combination with a pharmaceutically acceptable carrier.

47. An immunoassay for detecting a colon carcinoma-associated antigen which binds to the mouse/human chimeric antibody Chi #1 as produced by the cell line deposited with the American Type Culture Collection and assigned accession number CRL-12316 in a sample comprising:

- (a) contacting said sample with the Chi #1 antibody; and
- (b) detecting said antigen by detecting the binding of said antibody to the colon carcinoma - associated protein antigen.

48. A method for diagnosing colon cancer in humans comprising:

- (a) removing a histological specimen from a patient suspected of having a colon carcinoma;
- (b) contacting the specimen with a chimeric antibody according to claim 43;
- (c) staining the specimen with an immunohistochemical stain; and
- (d) detecting the presence of the antigen-antibody complex by the stain.

49. A method for diagnosing colon cancer in humans comprising:

- (a) removing a histological specimen from a patient suspected of having a colon carcinoma;

- (b) contacting the specimen with mouse/human chimeric antibody which binds to an antigen which binds to mouse/human chimeric antibody Chi #1 as produced by the cell line deposited with the American Type Culture Collection and assigned accession number CRL-12316;
- (c) staining the specimen with an immunohistochemical stain; and
- (d) detecting the presence of the antigen-antibody complex by the stain.

50. A kit for the immunohistochemical detection of colon carcinoma comprising:

- (a) mouse/human chimeric antibody Chi #1 (ATCC CRL-12316);
- (b) reagents for immunoperoxidase and secondary antibody; immunoperoxidase; and
- (d) colorizing reagents.

51. A purified antibody which is raised against an immunopurified human colon carcinoma associated antigen that is specifically bound by monoclonal antibody 31.1 , as produced by hybridoma PCA 31.1, deposited with the American Type Culture Collection and assigned accession number PTA-2497.

52. The antibody of claim 51 which is a monoclonal antibody.

53. An antibody which is raised against a purified human colon carcinoma associated antigen that is specifically bound by monoclonal antibody 33.28, as produced by hybridoma PCA 33.28, deposited with the American Type Culture Collection and assigned accession number PTA-5413.

54. The antibody of claim 53 which is a monoclonal antibody.